THE FINAL EXAMINATIONS, OR EXAMINATIONS OF MATURITY, AT THE GERMAN GYMNASIUM AND REAL-GYMNASIUM.

It has long been a matter of controversy, and is indeed being actively debated in some parts of Germany today, whether the pass-examination, as it is called in England, or the final examination, as it is termed here, is necessary. The opponents of the examination system assert that after having had pupils for some nine years teachers ought to be well acquainted with their mental powers, with their excellencies and their weaknesses, and be prepared to pass a fairly just estimate upon their characters and abilities. In the fear of this examination boys try to cram their heads with knowledge, sit up to unseasonable hours, and live laborious and worried days; still others, who are less timid and more resourceful, manage to display on the examination an amount of knowledge which is decidedly disproportionate to the amount displayed in their daily class work. As a result of this very apparent injustice the zealous, plodding boys are turned from their method of work and are led to depend upon the lucky chance which they see has helped out their more acute companions.

The adherents of the system, on the other hand, say that the whole life is a continuous trial to which the boys must be early accustomed. The world wants men of ready wit, men with presence of mind, not to be disturbed by any danger or obstacle. The examination of maturity is therefore a test whether those boys are *mature*—ripe for life. It is at the same time a bar to the injustice which may be found even among schoolmasters. They are human, they have their weaknesses, these rulers of the class-room, and it too often happens that when a boy has had the misfortune to touch one of their weak points, the teacher is inclined to revenge himself by giving that pupil a lower mark; this injustice is partially done away with by the examination system. It was reported that once his teachers had resolved to

pluck a boy who had been lazy and who had the impudence to present himself for the examination. His papers had been rather weak, but he managed to escape failures, so the board of examinations was obliged to admit him to the oral examination. In this test he came off better than his companions, for, accustomed to making but little preparation for his lessons, and therefore relying upon his ability to organize his knowledge at a moment's notice, he was not at all surprised at seeing passages of Tacitus and Euripides before him which he had never before seen. He simply applied himself to the day's work as he had been accustomed to do under similar circumstances in term time, and was fortunate enough to make an excellent showing. Of course, such instances are comparatively rare, but they point a moral which is worth while taking into consideration.

At the beginning of the Easter term, which includes the time from Christmas to Easter, the names of the examinees, with the marks they may have obtained from their teachers, are sent to the privy councilor of the state secretary of public instruction. This high official appoints a president or chairman for the board of examinations at each school. This president is either a professor of the university or the head master of the school. The board of examination consists of the teachers who have instructed the examinees during the last year that precedes the examination. About a month or six weeks before Easter the written examination begins. The subjects for the different branches of science and languages in which the students are to be examined are given out by the examiners, but they are bound by their oath of office not to give subjects that have already been studied by the pupils. These subjects are all "unseen." The examiner would lay himself open to the charge of fraud if he chose a subject that was known to the examinee, and such an action would result in the loss of his position. In this respect we differ radically from our neighbors across the Channel. In England the subjects of the examination are made known to the examinee six months before the time set for the examination; in Latin, for instance, the second book of Virgil's *Æneid*, in Greek certain books of Xenophon's *Anabasis*, in physics the chapters concern-

ing dynamics, etc. Then the pupils direct their attention to the subjects indicated and those alone. There are "unseens," too, but they are comparatively easy. In another most important point we differ, namely, concerning the examiners. In England there is a board of examination for each three or four counties. These boards travel from school to school, and no teacher is allowed to examine his own pupils. This seems to indicate that the English custom is more likely to be superior on the side of impartiality; in reality, however, it has several very considerable disadvantages. In the first place, the parents of the pupils are obliged to pay for this examination, whereas in Germany the examinations cost nothing, inasmuch as they are a part of the duties of the teacher. The system in England also makes it possible for the examiner to be approached by interested parties on behalf of a candidate, whereas in Germany the whole board of teachers is obliged to read all the compositions and all the papers in every branch of the examination, and to pass an opinion upon each. The chairman looks over all these results and passes the final opinion. Again, the English system implies a certain distrust of the teacher; else why should outside examiners be brought in? In this respect also it seems to me that the German plan is better and is likely to be attended with more accurate and just results, as well as establishing and maintaining a better relationship between teacher and pupil.

When the written examination is finished, the papers are corrected by the teacher and are circulated among the members of the board. This done, they are sent to the president, who is obliged to peruse them. When the day of the oral examination has come, there is first a conference or meeting of the whole board in which the results of the written examination are discussed. If a pupil has written papers which are considered by the examiners to be poor, he may be excluded from the examination. The gradation of students is as follows: Class 1, very good; Class 2, good; Class 3, sufficient; Class 4, insufficient. Before the oral examination the chairman explains to the board of examiners the rules and regulations that ought to govern their conduct. He reminds them that the result of the examination

of the candidate is decided by the majority of the votes cast, and that his only privilege is to decide in case of a tie. He also impresses them with the fact that they must decide on the merits of the case before them, and not be influenced in their judgment by any knowledge of the candidate's history. The examination in a science or a language lasts generally one hour, and the subject must be an "unseen." In history and religion, however, it is possible for the examiner to choose subjects which have been treated in the class during the two preceding years. In Latin, French, Greek, or English, the examiner selects passages from Cicero, Molière, Thucydides, and Shakespeare, and grants from three to five minutes to the candidates to look over the selections. If, however, a boy has taken a first-class stand in the written work, he may be excused from the oral examination. The examination over, a conference is held on the final marks which the examinee shall get, and as soon as a decision is reached the young man is called in. This is a very interesting time for him, and his face generally indicates his feelings.

The following subjects and problems were given at a German *Real-Gymnasium* in the final examination in writing, Easter, 1902:

1. German essay: *Der Mensch ist selbst sein grösster Feind* ("Man is the greatest enemy to himself").

2. Latin: Translation from Cicero, *De finibus bonorum et malorum*, Liber I, chapter 20, pp. 65–68.

3. French composition: *Cyrano de Bergerac*, par E. Rostand, un Mirior der siècle de Louis XIV.

4. English translation (from German into English); Schiller, *History of the Thirty Years' War.*

"Turenne, fettered by the instruction of Mazarino, who had seen with jealousy the warlike prowess and increasing power of the Swedes, excused himself on the plea of a pressing necessity to defend the frontier of France on the side of the Netherlands, in consequence of the Flemings having failed to make the promised diversion. But as Wrangel continued to press his just demand, and a longer opposition might have excited distrust on the part of the Swedes, or induce them to conclude a private treaty with Austria, Turenne at last obtained the wished-for permission to join the Swedish army.

"The junction took place at Giessen, and they now felt themselves strong enough to meet the enemy. The latter had followed the Swedes into Hesse,

in order to intercept their commissariat, and to prevent their union with Turenne. In both designs they had been unsuccessful; and the Imperialists now saw themselves cut off from the Maine, and exposed to great scarcity and want from the loss of their magazines. Wrangel took advantage of their weakness, to execute a plan by which he hoped to give a new turn to the war. He, too, had adopted the maxim of his predecessor, to carry the war into the Austrian states. But discouraged by the ill success of Torstensohn's enterprise, he hoped to gain his end with more certainty by another way. He determined to follow the course of the Danube, and to break into the Austrian territories through the midst of Bavaria. A similar design had been formerly conceived by Gustavus Adolphus, which he had been prevented carrying into effect by the approach of Wallenstein's army, and the danger of Saxony. Duke Bernard moving in his footsteps, and more fortunate than Gustavus, had spread his victorious banners between the Iser and the Inn; but the near approach of the enemy, vastly superior in force, obliged him to halt in his victorious career, and lead back his troops. Wrangel now hoped to accomplish the object in which his predecessors had failed, the more so, as the Imperial and Bavarian army was far in his rear upon Lahn, and could only reach Bavaria by a long march through Franconia and the Upper Palatinate. He moved hastily upon the Danube, defeated a Bavarian corps near Donauwerth, and passed that river, as well as the Lech, unopposed. But by wasting his time in the unsuccessful siege of Augzburg, he gave opportunity to the Imperialists, not only to relieve that city, but also to repulse him as far as Lauingen."

5. Elementary mathematics.

   a) To construct a triangle of which the base c and its opposite angle b are given, and in which the sines of the angles lying at the base are in the proportion of m to n. $c = 5$ cm; $b = 60°$; $m = 2$; $n = 5$.

   b) On the area of an equilateral cone a hemisphere is constructed: In what proportion are the contents (*a*) of the cone, and (*b*) of the hemisphere, divided?

   c) At the age of thirty years a man deposits in a bank 5,000 marks, bearing interest at 3 per cent., intending to add the sum of 500 marks at the end of every year until the same has grown so as to yield him a simiannual interest of 1,000 marks from the end of his sixtieth year for eighteen years. How long must he continue his payments, and what sum must he pay at the end of the last year?

6. Analytical geometry.

   a) From the points of intersection of the two straight lines $5x - 8y + 86 = 0$ and $x + 6y - 45\frac{1}{2} = 0$ the tangents are drawn to the circle with the center (-42) and the radius 5. How long are these tangents, and what angle do they inclose?

   b) In an ellipse with the half axes a and b the normal line shall be fixed

by construction and calculation which halves the major half-axis. What condition must a and b fulfil to make the problem capable of solution?

c) In a hyperbola, the chord $B\ C$ is drawn vertically to the major axis, and B is joined with the vertex A, C with the other vertex A. $A\ B'$ and $A'\ B$ intersect each other in P. Where does P run if $B\ C$ is put off parallel to itself?

7. Physics.

a) A stone is dropped into a well. After 4.8 seconds it is heard to touch the bottom. How deep is the well? Average degrees of temperature of the air 7°C.

b) A cyclist approaches an open whistle of 20 cm length with a rapidity of 15 miles per hour; the whistle is blown with lighting-gas of 27°C., and produces its first overtone. What tone will he hear when he approaches the whistle, what when he withdraws from it?

c) A compound microscope has an object-glass which consists of two equal lenses touching each other. Each of them has a focal distance of 1.8 mm. The ocular glass is formed by a magnifier, consisting of two equal planoconvex flint-glass lenses, which are 1 cm distant from each other and ground (cut) with a radius of 4.8 cm ($ne = 1.62$). The length of the tube is equal to the distinct scope of vision (range of sight) = 25 cm. How great is the magnifying power of the microscope?

The time granted to the examinees for each branch of the examination varies from three to six hours; German, French, and mathematics, six hours; the rest generally four hours.

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